

Remarks/Arguments:

Applicant's Attorney thanks Examiner McCommas and his supervisor for the telephone interview on February 18, 2009. During the interview, the Examiner explained to Applicant's Attorney the rationale behind the rejection of claims 1-24. While Applicant's Attorney does not agree with the rationale behind the rejection of claims 1-24, claims 1 and 11 has been amended to be more clear.

Claims 1-24 are pending in the above-identified application. Claims 11-24 were rejected under 35 U.S.C. § 102(b) as being anticipated by Huang (USPN 6,268,840). Applicants respectfully request reconsideration of this rejection. In particular, Huang does not disclose or suggest a controller that,

controls the common and segment driver in such a way that each of the reset, select, hold, non-select, ON and OFF voltage waveforms has the same number of unit intervals the reset, select, hold, non-select voltage waveforms have no more than two levels of voltages concurrently in the same unit interval for all of the common electrodes, and the ON and OFF voltage waveforms have not more than two levels of voltages for all of the segment electrodes in the same unit interval,

as required by claim 11.

This feature of the subject invention, as defined by claim 11, is illustrated in Figs. 7A through 8C, which are described in the specification at pages 9-12. As shown in Fig. 8A, the signal applied to the common electrodes has only two levels. As shown in fig. 7A, these are 0V and 40V. In Fig. 7B, the unit intervals (1), (2), (3) and (4) show the common and segment waveforms. Thus, each of the divisions (1) through (4) corresponds to a unit interval. As the signal applied to the common electrodes has only two values, 0V and 40V, it necessarily follows that "no more than two levels of voltages in the same unit interval concurrently" are applied to all of the common electrodes. This can be seen in Fig. 8A where the common signals applied to the respective rows of the display are illustrated. The signals applied to the respective common electrodes at the same time are illustrated by a vertical line. As can be see, any vertical line drawn on the common waveforms in Fig. 8A would have only two values.

As shown in Figs. 7A, 8A and 8C, only two different waveforms are applied to the segment electrodes. As shown in Fig. 7B, these two waveforms are applied at the same time when one pixel in a row is turned on while another pixel in the row is turned off. Because only

two waveforms can be applied and because the application of these waveforms is synchronized, the signal applied to all of the segment electrodes in any unit interval can have a maximum of two different values.

The first of these limitations is neither disclosed nor suggested by Huang. As shown in Figs. 4A through 4F, at any given time, some of the row electrodes (corresponding to the common electrodes of the subject invention) of the display are in each preparation, selection, evolution and holding stage at any time. As shown in Figs. 6A through 6D, the signals applied to the row electrodes in corresponding unit intervals may have as many as four different values. In Figs. 6A, 6B, 6C and 6D, respectively, in the first unit interval, $V_{P1}(0v)$ is applied to the row electrodes that are in the preparation stage, $V_{S1}(40v)$ is applied to the row electrodes in the selection stage, $V_{E1}(24V)$ is applied to the row electrodes in the evolution stage and $V_{N1}(55V)$ is applied to the row electrodes in the holding stage. Thus, Huang does not disclose or suggest a controller that "controls the common ... driver in such a way that ... the reset, select, hold, non-select voltage waveforms have no more than two levels of voltages concurrently in the same unit interval for all of the common electrodes."

Claims 12-24 depend from claim 11 and, thus, are not subject to rejection under 35 U.S.C. § 102(b) in view of Huang for at least the same reasons as claim 11. Furthermore, with regard to claim 24, Huang does not disclose or suggest that "the voltages applied to the common and segment electrodes are 42 volts or less." As shown in Figs. 6A through 6D, the voltages applied to the column (segment) electrodes and row (common) electrodes may be as much as 60 volts. Accordingly, claim 24 is not subject to rejection under 35 U.S.C. § 102(b) for reasons independent of claim 11.

Claims 1-10 were rejected under 35 U.S.C. § 103(a) as being obvious in view of Huang and Yang et al. (USPN 6,154,190, "Yang"). Applicant respectfully requests reconsideration of this rejection. In particular, neither Huang, Yang nor their combination disclose or suggest that,

when the display content represented by the select voltage waveforms applied to the select electrodes includes both turned on and turned off pixels, ... the segment electrode drive voltage waveforms are formed so that there is a period

of time during which the same voltage is applied to all segment electrodes at the same time during the step of writing the display content,

as required by claim 1.

This feature of the invention is disclosed in Fig. 8A and described in the specification in paragraph [0039]. As described, during the intervals B and C shown in Fig. 8A, the same voltage is applied to all of the segment electrodes at the same time, regardless of whether the pixels are turned on or turned off. It is noted that both intervals B and C include turned on and turned off pixels.

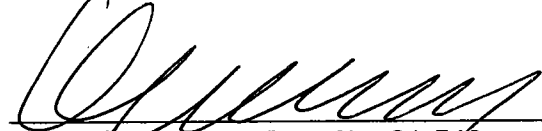
In the Office Action, it is admitted that Huang does not disclose this limitation of claim 1. It is asserted, however, that Yang does disclose this limitation. Applicant respectfully disagrees. In particular, Yang discloses that the column waveform to turn on a pixel is the inverse of the waveform to turn off the pixel. (Compare period 2 in Figs 5 and 6). Furthermore, at column 17, lines 41-49, Yang indicates that these waveforms are different. From the above, it can be seen that, in Yang, when the display content, represented by the select voltage waveforms applied to the select electrodes, includes both turned-on and turned-off pixels, the segment waveforms are not formed in such a way that there is a period of time in which the same voltage is applied to all of the segment electrodes at the same time. Instead, the column (select) waveform for a turned-on pixel is the inverse of the column waveform for a turned-off pixel. Thus, when the display content represented by the select voltage waveforms applied to the select electrode includes both turned on and turned off pixels, there will be no time during which the same voltage is applied to all of the segment electrodes at the same time. Thus, claim 1 is not subject to rejection under 35 U.S.C. § 103(a) in view of Huang and Yang. Claims 2-10 depend from claim 1 and are not subject to rejection under 35 U.S.C. § 103(a) in view of Huang and Yang for at least the same reasons as claim 1.

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In view of the foregoing amendments and remarks, Applicant requests that the Examiner reconsider and withdraw the rejection of claims 1-24.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Kenneth N. Nigon', written over a horizontal line.

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KNN/pb/ems

Dated: March 4, 2009

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